

Serial No. 10/804,952
Atty. Docket MIO0048V2/40509.295

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REMARKS

Applicant notes with appreciation the indication of allowable subject matter in the most recent Office Action. With this amendment, applicant has canceled non-elected claims 1-8 without prejudice to their being re-presented in a timely-filed divisional patent application. In the Office Action, the Examiner maintained the rejection of claims 9-10, but indicated that claims 11-15, although objected to, would be allowable if rewritten in independent form. Applicant has elected to re-write dependent claims 11 and 15 in independent form. Applicant submits that claims 11-15, as amended, are in condition for allowance. Applicant also continues to believe that claims 9-10 are patentable as well. A detailed response to the rejection of claims 9-10 follows.

Response to the Rejection Under 35 USC §103

In the Office Action, the Examiner rejected claims 9-10 under 35 USC §103 as unpatentable over "Applicant Admitted Prior Art," ("APA"), specifically Figs. 1 and 2 and the Background portion of the specification, or Tsukamoto (US 5841194). The Examiner asserted that "APA" taught a method of fabricating a circuit board "as claimed by the present invention." The Examiner further asserted that Tsukamoto "inherently" disclosed the removal of portions of a conductive material to define a first circuit pattern and a first rail area, and then "removing portions of said conductive material of said first layer from said first rail area," referring to Tsukamoto's Fig. 1.

Applicant submits that neither APA nor Tsukamoto teaches or suggests the presently claimed invention. As shown and discussed by applicant, specification page 6, paragraph [0027], the prior art circuit board depicted in Fig. 2 includes first and second rail areas 201 and 202 that "include a large amount of conductive material" that "stretches from one end of the substrate to the other." As explicitly stated in paragraph [0027], "Thus,, the rails 201 and 202 do not get etched and conductive material is not removed from the rails 201 and 202."

As discussed in the specification, the prior art circuit board depicted in Fig. 2 is susceptible to deformation and warping due to the continuous lengths of conductive material in the rail areas which are thermally cycled during board fabrication. In contrast, as described in the specification at page 7, paragraphs [0028] and [0029], one embodiment of the claimed

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invention as shown in Fig. 3A includes first and second rail areas 301 and 302 in which all of the conductive material has been *removed*. In another embodiment shown in Fig. 3B, portions of the conductive material have been *removed* from the rail areas such that no continuous lengths of conductive materials remain.

The "APA" relied upon by the Examiner does not teach removing portions of conductive material from the first rail area. To the contrary, paragraph [0027], quoted above, explicitly states that no material is removed from the rail areas. Independent claim 9 explicitly recites that portions of the conductive material from the first rail area are *removed* such that "no continuous lengths of conductive material remain within said rail area." Nowhere does "APA" teach or suggest such a fabrication method.

In the final rejection (page 2), the Examiner asserted that "the APA inherently discloses the [sic] removing portions of said conductive material of said first layer from said first rail area." This assertion is directly contrary to the written record which explicitly states that there is no removal of material from the rail areas in the prior art circuit board depicted in Fig. 2. Applicant submits that the Examiner has confused removal of material from patterned area 204, which is described, with removal of material from rails areas 201 and 202 which most certainly is **not** described. As recited in claim 9, conductive material is removed from the first layer to define a first circuit pattern and a first rail area. While that removal of material is described in paragraphs [0007] and [0027] and shown in Fig. 2, there is no material removed from the rail areas in prior art Fig. 2 once they have been formed. And, nothing in the described prior art teaches or suggest removal of material from the rails areas. The APA does not teach or suggest the subject matter recited in claims 9-10.

Tsukamoto, on the other hand, does not relate to a method of fabricating a circuit board. Rather, Tsukamoto depicts a chip carrier for packaging a semiconductor chip device comprising an insulating board substrate 101 having a peripheral stiffener 106. A semiconductor chip 201 is designed to be inserted into the carrier such that bonding pads on the chip carrier match up with terminal electrodes on the mounted chip. Tsukamoto is so far removed in structure and operation from applicant's invention that it is difficult to follow the Examiner's reasoning.

Assuming that the Examiner is equating one of the bond pads 102 as a "circuit pattern" and another of the bond pads 102 as a "rail area," there is no teaching in Tsukamoto of

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"removing portions of said conductive material of said first layer to define a first circuit pattern" as recited in claim 9. Applicant expressly disputes that the bond pads 102 of Tsukamoto can properly be considered to be either a "circuit pattern" or a "rail area." Tsukamoto is silent concerning how bond pads 102 are formed. Silence in a reference does not form a basis for a conclusion of obviousness.

Nor is removal of conductive material "inherent" in Tsukamoto as the Examiner asserts. Bond pads 102 could be formed using a removable mask so that conductive material is deposited only on specific areas. In order for the Examiner to rely upon inherency in a reference, there must be proof that the asserted feature must *necessarily and always* be formed in the manner asserted. MPEP, §2112. Here, the Examiner has failed to carry that evidentiary burden. The Examiner has failed to point to any teaching in Tsukamoto that would prove that bond pads 102 are formed in the manner speculated by the Examiner. The rejection fails for this reason alone.

Moreover, Tsukamoto fails to teach or suggest "removing portions of said conductive material ... from said first rail area" as recited in claim 9. Assuming again that the Examiner is asserting that at least one of bond pads 102 corresponds to the recited "first rail area," nothing in Tsukamoto teaches or suggest removing any material whatsoever from bond pads 102. In order to support the Examiner's reasoning, Tsukamoto would have to form a bond pad 102 and then remove at least a portion of the conductive material making up bond pad 102. It is quite clear that Tsukamoto fails to even hint at such a fabrication step. Claims 9 and 10 are patentable over Tsukamoto. And, as discussed above, the Examiner has misinterpreted the "APA" teachings. Nothing in either Tskumamoto, or the APA, or any combination thereof, teaches or suggests the subject matter claimed in claims 9-10.

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For all of the above reasons, applicant submits that claims 9-15 as amended are patentable. Early notification of the allowance of all remaining claims is respectfully solicited.

Respectfully submitted,

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